

**ABSTRACT**

A package substrate having separate routing layers for transmitter signals and receiver signals, which signals are routed in differential pairs. The differential pairs of signal routing lines are isolated between a separate ground plane for transmitter and receiver traces and dedicated power planes, where a single power plane is dedicated to a single differential pair of signal routing lines. In this manner, a high degree of electrical isolation exists not only between the transmitter signal traces and the receiver signal traces, which are on different layers, but also between different differential pairs of signal routing lines on the same layer, each of which has its own dedicated power plane. Thus, a very high speed core routing system can be designed in a package substrate that can then be adapted as necessary to support a broad range of different integrated circuit designs.

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